MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 3, 2021/2022

EES3016 – ENGINEER AND SOCIETY

(All Section / Groups)

15 AUGUST 2022
9.00 a.m. – 11.00 a.m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 5 pages (excluding the cover page) with 5 Questions only.

2. Attempt all of the **FIVE** questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

QUESTION 1

(a) *Malaysia has a 94.7% literacy rate, ranking 77 in the world, as quoted by the CIA World Survey on January 2019.*

(i) Discuss ONE significance of the above statistics from the socioeconomic perspective of development.

[3 marks]

(ii) Describe TWO factors that contribute to the above statistics.

[4 marks]

(b) The 9th United Nations Sustainable Development Goal (SDG) is on ***Industry, Innovation and Infrastructure***. The SDG focuses on transportation, manufacturing, carbon dioxide footprints, research and development and broadband.

Discuss TWO roles of engineers in reaching the above SDG goal by the year 2030.

[5 marks]

(c) Citing ONE suitable example, discuss the waste management principle of "*Product Life Cycle Extension*".

[4 marks]

(d) "*Purchasing Locally Produced Materials*" is an environmental strategy to combat climate change.

(i) Discuss ONE way the above strategy reduces climate change.

[2marks]

(ii) Discuss the challenges in achieving the above strategy.

[2 marks]

QUESTION 2

(a) Tekun Publishing started operations in 2018. In 2020, given its track record in successful printing and publishing, it was awarded the contract to print textbooks for Multimedia University.

When the new school year drew near, the company realized it was understaffed and employed students on a part-time basis to assist in the expected increase in orders from Multimedia University. As the orders started coming in, they came with unpredicted outcomes. Firstly, the orders came at ad-hoc times, some needing express deliveries in time to start the new semester. Secondly, some of the orders were much larger than they had thought they would be. Printing these orders were handled by the part-timers who had to juggle between work and study, as well as suffered from lack of equipment handling expertise. The unexpected volume of orders also led to unprecedented printing and editing errors. Books that did not meet quality expectations increased in volume, which also lead to unprecedented reprinting works.

Tekun Publishing could not deliver textbooks to their new customer on schedule, leading to unhappiness among the Procurement Unit of Multimedia University. Late deliveries were made and no reasons were provided.

You have been employed as the project manager to increase the satisfaction of Multimedia University with the services of Tekun Publishing. Apply FOUR Project Management Skills to win back the confidence of Multimedia University in Tekun Publishing.

[10 marks]

(b) Citing suitable examples, illustrate TWO cost effective design concepts in marketing and customer relationship.

[5 marks]

(c) Predict TWO impacts to a signatory of the Washington Accord.

[5 marks]

QUESTION 3

(a) Discuss TWO reasons why safety and health practices are mandatory in the workplace.

[6 marks]

(b) Idris is an electrical technician who reports to Ramesh, an engineer. Both work for IoP Sdn. Bhd.

Both Ramesh and Idris were assigned the task of testing the voltage-regulating unit which contains exposed, energized electrical conductors. Both of them were not using personal protective equipment (PPE).

Ramesh opened the panel cover of the voltage regulator's control cabinet in preparation to trace the low-voltage (120 V) wiring. The wiring was not color coded which made the task difficult.

Ramesh climbed onto a nearby cabinet in order to view the wires. Idris entered the control cabinet and tugged at the low-voltage wires while Ramesh tried to identify them from above.

Suddenly, Ramesh heard a gurgling sound and looked down to see Idris shaking as though he was experiencing electrical shock.

Cardiopulmonary resuscitation (CPR) was administered to Idris but he was pronounced dead almost 2 hours later as a result of his contact with an energized electrical conductor.

(i) Discuss TWO actions that the employer could have taken to avoid this accident.

[6 marks]

(ii) In event of prosecution by DOSH for negligence of safety at workplace, discuss who could be prosecuted and why.

[6 marks]

(iii) What personal protective equipment should have been used?

[2 marks]

QUESTION 4

(a) Ir. Deva left company Kappa Constructions three weeks ago to work for competitor company Bina Ria Limited.

While at Kappa Constructions, Ir. Deva was in charge of a project which was virtually completed before he left. However, Ir. Deva did not sign or seal the construction documents before leaving.

Kappa Constructions is now requesting Ir. Deva to sign the documents.

Should Ir. Deva verify the drawing? Apply TWO Code of Engineering Ethics to justify your answer.

[7 marks]

(b) Ir. Farhan is an engineer who is competent in designing specifications for 4G communication system. He is also the owner of a company that manufactures and supplies 4G communication systems. Cellular B Sdn. Bhd. approaches Ir. Farhan to prepare the specifications and also nominate potential manufacturers for the system.

Is it ethical for Ir. Farhan to accept the offer? Apply TWO Code of Engineering Ethics to justify your answer.

[7 marks]

(c) Ir. Slyvia worked in a research based company in 2018 where she designed a smart CCTV system. The patent for the SSTV system was granted under the company.

In 2020, she joined work as an engineer with SeeTV Sdn. Bhd, which provides security monitoring services. Her new boss asks her to integrate her previous design into the design of the company's new security system.

Discuss the ethical and professional approach for Ir. Slyvia to solve this problem.

[6 marks]

QUESTION 5

(a) Ir. Puveen, a civil engineering consultant, specializes in structural integrity and green buildings. He is asked to evaluate the design of the electric cabling at a new incinerator by Bina Sdn. Bhd.

After review of the design, Ir. Puveen endorses the design and declares the design is now ready to be implemented.

(i) Citing TWO Code of Engineering Ethics, discuss the implications of Ir. Puveen's actions.

[6 marks]

(ii) Citing TWO Code of Engineering Ethics, discuss the correct actions that must be taken by Ir. Puveen when approached by Bina Sdn. Bhd. to evaluate the reclamation project.

[6 marks]

(b) Citing TWO suitable Code of Engineering Ethics, discuss the need to follow engineering ethics in publishing engineering research journals.

[8 marks]